

CLAIMS

What is claimed is:

- 1 1. A hybrid power converter apparatus, comprising:
2 a variable speed energy generating device producing differing amounts of
3 power at different speeds;
4 a hybrid uninterruptible power supply coupled in-line between an AC line
5 and a load, wherein said hybrid uninterruptible power supply is switchably
6 coupled to said variable speed energy generating device, wherein said
7 hybrid uninterruptible power is comprised of a regulator section coupled to
8 an inverter and an energy storage module coupled therebetween.
9
- 1 2. The apparatus according to claim 1, wherein said inverter is selected from
2 the group consisting of: transformerless AC pulse width modulator inverter,
3 DC-AC inverter, static inverter, rotary converter, cycloconverter, and AC-
4 AC motor generator set.
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- 1 3. The apparatus according to claim 1, wherein the variable speed energy
2 generating device is selected from the group consisting of: internal
3 combustion engine, turbine, micro-turbine and Stirling engine.
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- 1 4. The apparatus according to claim 1, wherein said regulator section is an
2 enhanced conduction angle dual boost DC bus voltage regulator.
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- 1 5. The apparatus according to claim 1, further comprising a switch between
2 said inverter and said load.
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- 1 6. The apparatus according to claim 1, further comprising a switch coupling
2 said hybrid uninterruptible power supply to said AC line.
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- 1 7. The apparatus according to claim 1, wherein said energy storage module, is
2 selected from the group of devices consisting of: batteries and flywheel.
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- 4 8. The apparatus according to claim 1, further comprising a bypass switch
5 coupling said AC line to said load.
6
- 7 9. The apparatus according to claim 8, wherein said bypass switch is a bi-
8 directional thyristor.
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- 10 10. The apparatus according to claim 1, further comprising a bypass switch
11 coupling said variable speed energy source to said load.
12
- 1 11. The apparatus according to claim 10, wherein said bypass switch is a bi-
2 directional thyristor.
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- 1 12. A method for providing uninterruptible AC power to a load, comprising:
2 coupling an AC line to a hybrid uninterruptible power supply;
3 coupling said hybrid uninterruptible power supply to said load, wherein said
4 hybrid uninterruptible power supply comprises a regulator section, an
5 inverter and an energy storage module; and
6 switchably coupling a variable speed energy source to said hybrid
7 uninterruptible power supply.
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- 1 13. The method according to claim 12, further comprising feeding the hybrid
2 uninterruptible power supply with said energy storage module.
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- 1 14. The method according to claim 13, wherein said feeding is derived from a
2 load shed term.
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1 14. The method according to claim 12, further comprising charging said energy
2 storage module while simultaneously providing output power to said load.

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1 15. The method according to claim 12, further comprising steps selected from
2 at least one of the steps consisting of: correcting for sag, correcting for
3 surge, peak shaving, compensating for VAR, active filtering and
4 elimination of active harmonics.

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6 16. A hybrid variable speed generator/uninterruptible power supply device,
7 comprising:

8 a variable speed generator producing differing amounts of power at
9 different speeds; and

10 a hybrid uninterruptible power supply coupled in-line between an AC line
11 and a load, wherein said hybrid uninterruptible power supply is switchably
12 coupled to said variable speed generator, and wherein said hybrid
13 uninterruptible power is comprised of a enhanced conduction angle dual
14 boost DC regulator section coupled to an inverter with an energy storage
15 module coupled therebetween.

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